

ABSTRACT

A financial instrument, exchange, and method based upon the volatility in the price of an underlying. Such volatility contracts have a creation date, a term expiring at an expiration date, and a settlement price at the expiration date defined as " S_{vol} ," under the formulae:

$$S_{vol} \equiv f \left\{ R_{t_1}, R_{t_2}, R_{t_3}, \dots, R_{t_n} \right\}, \text{ wherein:}$$

$S_{vol} \geq 0$, $n > 1$, t = each of a series of observation points from 1 to " n "; R_t = return of the underlying based upon each of the observation points in time " t_n "; and n = total number of observations within the term. The term is selected from the group consisting of days, months, quarters and years. The settlement price is annualized based upon an approximate total number of periods in a calendar year. R_t is selected from the group consisting of:

$$R_t = \ln \left(\frac{M_t}{M_{t-1}} \right) \quad \text{and} \quad R_t = \left(\frac{M_t - M_{t-1}}{M_{t-1}} \right)$$

wherein: M_t = mark-to-market price at time " t "; and M_{t-1} = mark-to-market price at the time immediately prior to time " t ", at time " $t-1$ ". The settlement price is determined in accordance with the following formula:

$$S_{vol} = \sqrt{\frac{P}{n} \sum_{t=1}^n R_t^2} \quad \text{or} \quad S_{vol} = \sqrt{\frac{P}{n-1} \sum_{t=1}^n (R_t - \bar{R})^2}$$

wherein: P = approximate number of trading periods in a calendar year, and each observation point " t " is taken at the same time in each trading period, and \bar{R} = mean of all R_t 's.